obtained with therapeutic doses. This is wholly apart from the recognized fact that massive doses of these bodies applied directly to the gastric mucous membrane do cause irritation. The authors' experimental work on animals showed that all of the digitalis bodies caused nausea and vomiting when moderate doses were introduced into the circulation. They explained this action by a direct effect on the vomiting centre of the medulla and it was also found that vastly larger doses of some of these drugs could be introduced into the stomach without causing nausea or vomiting, and in such cases it was subsequently shown that little absorption into the blood stream had taken place. They believe that we have no means at present of securing the cardiac actions of the digitatis bodies without subjecting the vomiting centre to the influence of these agents at the same time, and there is no advantage in substituting one mode of administration; or one member of the group, for another, and the employment of opium to prevent the gastro-intestinal symptoms of the digitatis bodies in ordinary cases masks the appearance of toxic symptom which should serve as a signal for the reduction of the dose. The authors state that their results certainly lend no support whatever to the claims made that digalen, digipuratum, digitalysatum or the fat-free tincture of digitalis are in any way less actively nauseant or emetic in proportion to their cardiac activity than any of the better known and less expensive galenical preparations of digitalis and strophanthus.

Benzol in the Treatment of Leukemia.—BILLINGS (*Jour. Amer. Med. Assoc.*, 1913, lx, 495) reports 5 cases of leukemia treated with benzol. Four of these patients suffered from myeloid leukemia and one from a rather atypical type of lymphoid leukemia. All but one of the patients had received *x*-ray treatment before the benzol was begun. Röntgenotherapy was used in connection with the benzol treatment with all of the patients except in one patient where a severe *x*-ray burn prevented its use. Billings reports the cases in detail and a brief summary of his results in the individual cases is of great interest. The first patient had shown phenomenal improvement under *x*-ray treatment but had relapsed, and a severe *x*-ray burn necessitated the withdrawal of this method of treatment. At the beginning of the benzol treatment he had approximately 200,000 leukocytes, with a rather large percentage of myelocytes. Under the use of the benzol, the leukocytes melted away and three weeks after the drug had been withdrawn the fall continued and reached the low count of 3,600, with no myelocytes. With the great drop in the whites, the red cells amounted to about 5,000,000, and the hemoglobin from 85 to 90 per cent., so that while there was a destruction and removal from the peripheral circulation of the leukocytes, both reds and hemoglobin improved. There was a corresponding improvement in the patient's general condition; a gain in weight of 5 pounds, a feeling of well-being and lessened nervousness especially of the tremor from which he had suffered during his whole illness. The second and third cases require no special mention except for the fact that both patients had *x*-ray treatment for months with progressive improvement in the blood picture and also that there was diminution in size of the spleen; but this improvement was slow and finally came to a stand. Under the use of both x-rays and of benzol the improvement became much more rapid, with corresponding improvement in general health. The fourth case deserves special mention because of the remarkable effect of the treatment. The patient had had two or three x-ray treatments before the benzol was begun on November 13. The first effect which was produced within six days, was to increase the number of leukocytes from 546,000 to 780,000. Three days later the count had fallen to 600,000; December 2, to 290,000; December 17 to 16,000, and January 5, the last examination, to 8,500. In less than two months of Röntgenotherapy and benzol treatment, the blood picture had returned almost to normal, and the myelocytes, which were found in the blood in a high percentage disappeared. The spleen, which was very large in the beginning, was just palpable on the last date. There was a corresponding general improvement in the patient's condition. In the fifth case the blood picture was that of lymphoid leukemia, but the lymph nodes were not large. The spleen was very large. With x-rays and benzol treatment the leukocyte count of 45,000 dropped to 19,000 in three days, then to 5,600 in six days. The benzol was continued experimentally, and January 5, about one month after beginning the treatment, the blood count was: hemoglobin, 68 per cent.; reds, 4,120,000; leukocytes, 5,900, of which there were small lymphocytes 35 per cent., large lymphocytes 9 per cent. and polynuclears 56 per cent. During the treatment the red cells and hemoglobin remained the same as at the beginning. The spleen rapidly diminished to not more than one-fourth the original bulk, and the small lymph-nodes disappeared. There was a marked improvement in the general condition of the patient. The benzol was usually given in gelatin capsules filled at the time of administration. One patient took the drug in an emulsion, made up by the hospital druggist, of which two teaspoonfuls equalled 15 minims of benzol. The drug was given soon after meals and at bed time. The beginning was 7 minims, which was soon increased to 15 minims. All patients complained of eructation of gas tasting and smelling of benzol. Burning in the stomach was a common symptom. As a rule the appetite was not disturbed, with one exception, and in this patient the general nutrition remained good. Of the other four all gained in weight. No other medicine was given except the necessary laxative or occasionally the mixture of rhubarb and soda as a stomachic. As a rule the patients were kept at rest. The benzol used was that obtained by the hospital druggist, and no analysis was made of it for the presence of nitrobenzol or anilin. However, Billings advises the use of a purified benzol on the ground of Selling's statement that impure benzol contains nitrobenzol and other products (anilin, etc.), and that anilin is the probable toxic substance producing purpura hemorrhagica, aplastic anemia, etc.

Antityphoid Vaccination in Children.—Russell (*Jour. Amer. Med. Assoc.*, 1913, lx, 344) says that the prophylactic use of antityphoid vaccine among children has, as yet, received scant attention in medical literature. He believes that this measure is highly desirable for children from two to sixteen years of age, who leave home for